

REMARKS/ARGUMENT

Claims 16-30 are currently pending in the present application.

Applicants have amended claims 16-22, 24-26, and 28-30 to correct for minor errors of form and to better recite the subject matter which Applicants regard as their invention. It is respectfully submitted that the amendments to the claims do not add new matter and have adequate support throughout the Specification.

Regarding claim 16, for example, this claim has been amended to recite that the converter unit "converts at least one of the speed of the rotor into torque and the torque of the rotor into speed," and that the braking resistor unit is "for converting electrical power of the electrical machine into thermal energy to brake the wheel shaft." These amendments are supported in the Specification, for example, on page 18, lines 1-3, which state that the "electrical drive machine 4 has at least one associated converter unit 11 . . . to influence the rotation speed/torque conversion," as well as on page 17, lines 19-25 which state that "to convert the electrical power . . . produced in the generator mode by the electrical machine 4, . . . into thermal energy . . . the electrical machine 4 has at least one associated braking resistor unit 10."

Otherwise, Applicants respectfully traverse all objections and claim rejections for the reasons that follow:

I. INFORMATION DISCLOSURE STATEMENT

The Information Disclosure Statement and PTO-1449 form mailed on January 9, 2002 has not been entered because copies of the references cited therein were allegedly not submitted to the Office.

Submitted herewith is a copy of the PTO-1449 form mailed on January 9, 2002, along with copies of the references cited therein. It is respectfully submitted that the Information Disclosure Statement be entered and that the references be considered.

II. OBJECTION TO THE DRAWINGS

The drawings were objected for failing to show every feature recited in the claims. Submitted herewith on a separate sheet of paper is a "Request for Entry of Proposed Drawings Corrections," together with a replacement Figure 1 showing an internal combustion engine and a fuel cell connected to the electrical machine. Furthermore, the Specification has been amended

to recite the reference characters added to Figure 1. It is respectfully submitted that the new Figures and the amendments to the Specification do not add new matter and have adequate support throughout the Specification and originally filed claims. It is kindly requested that the new drawings be entered and that the objection to the drawings be withdrawn.

III. OBJECTION TO THE ABSTRACT

The Abstract was objected to for allegedly being too long, for containing redundant phrases, and because it does not commence on a separate sheet of paper. Submitted herewith on a separate sheet of paper is a new Abstract amended to address the Examiner's concerns. It is respectfully submitted that the Abstract is now in unobjectionable condition. Accordingly, it is kindly requested that the objection to the Abstract be withdrawn.

III. OBJECTIONS TO THE SPECIFICATION

The Specification was objected to for containing various minor informalities and for referencing a patent claim. The Specification has been amended herein to address the Examiner's concerns. Accordingly, it is kindly requested that the objection to the Specification be withdrawn.

IV. OBJECTIONS TO THE CLAIMS

Claims 16, 24, 25, 28, 29, and 30 were objected to for containing minor informalities. These claims have been amended herein to address the Examiner's concerns. It is respectfully submitted that the amendments do not add new matter. Accordingly, it is kindly requested that the objections to the claims be withdrawn.

V. REJECTIONS OF CLAIMS 19, 20, 22, 24-26 AND 30 UNDER 35 U.S.C. § 112

Claims 19, 20, 22, 24-26 and 30 were rejected as indefinite under 35 U.S.C. § 112, second paragraph, for allegedly failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Claims 19, 20, 22, 24-26 and 30 have been amended herein to address the Examiner's concerns. It is respectfully submitted that the amendments do not add new matter

and place these claims in allowable condition. It is kindly requested that the rejections of claims 19, 20, 22, 24-26 under 35 U.S.C. § 112 be withdrawn.

VI. REJECTIONS OF CLAIMS 16-18 AND 21-27 UNDER 35 U.S.C. § 103(a)

Claims 16-18 and 21-27 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 3,925,695 to Raby (hereinafter "Raby") in view of U.S. Patent No. 6,404,082 to Rasinski et al. (hereinafter "Rasinski"). Respectfully, Applicants traverse.

Raby relates to a rotor resistor and fan for AC induction motors. As characterized, a resistor and cooling fan assembly 62 is mounted to a drive shaft for rotation therewith. (Raby, col. 3 line 66 to col. 4, line 17). A resistive element of the resistor and cooling fan assembly 62 is connected to stator windings of the motor which drives the drive shaft. The higher resistance increases the motor slip characteristic which determines the torque developed by an induction motor at starting or low speeds. Increasing the slip characteristic in turn increases the torque produced by the motor. In this manner, the resistor and cooling fan assembly 62 of Raby may be used to vary the torque produced by the motor while driving the drive shaft. (Raby, col. 1, lines 9-26).

Rasinski relates to an exciter for starting a power generator having a thermally isolated diode wheel and methods of removing a diode wheel from an exciter rotor shaft. The exciter includes an exciter rotor shaft, a thermal insulation layer mounted to the exciter shaft, and a diode wheel having a wheel hub. (Rasinski, Abstract).

To reject a claim as obvious over a combination of prior art references, the Examiner must demonstrate that the suggested combination discloses each element of a claim. In accordance with this standard, it is respectfully submitted that the combination of Raby and Rasinski does not disclose "a transmission unit having at least one input connectable in a rotationally fixed manner to the rotor and having at least one output connectable in a rotationally fixed manner to the wheel shaft such that rotation of the rotor rotates the wheel shaft through the transmission unit," as recited in claim 16.

As described above, Raby discloses a rotor resistor and fan for AC induction motors and Rasinski discloses an exciter for starting a power generator. However, it is believed that neither of these references discloses a transmission unit, much less a transmission unit "having at least one input connectable in a rotationally fixed manner to the rotor and having at

least one output connectable in a rotationally fixed manner to the wheel shaft," as recited in claim 16. If the Examiner disagrees, Applicants kindly request that the Examiner identify such a feature.

Further regarding claim 16, it is respectfully submitted that the combination of Raby and Rasinski does not disclose "at least one power converter unit operable to convert at least one of the speed of the rotor into torque and the torque of the rotor into speed," as recited in this claim. Raby deals strictly with basic AC induction motors, and Rasinski deals only with exciters for starting a power generator. Neither of these references, however, appears to disclose any power conversion structure whatsoever, much less a power converter operable to convert torque to speed and vice versa. The Examiner disagrees and asserts that the diode wheel of Rasinski discloses such a feature. However, there is absolutely nothing in Rasinski that indicates that the diode wheel 25 is operable to convert torque to speed and vice versa, as recited in claim 16.

Further regarding claim 16, it is respectfully submitted that the combination of Raby and Rasinski does not disclose "a braking resistor unit arranged in the vicinity of the electrical machine for converting electrical power of the electrical machine into thermal energy to brake the wheel shaft, the braking resistor unit being disposed around the circumference of at least one of the input or the output of the transmission unit or the wheel shaft," as recited in this claim. As described above, Raby discloses a resistive element connected to the stator windings of the motor to increase the motor slip characteristic, thereby increasing the torque produced by the motor. In this manner, the resistor and cooling fan assembly of Raby may be used to vary the torque produced by the motor **while driving the drive shaft**. However, the braking resistor of claim 16 does not vary the **drive torque** of the motor while driving the shaft, but rather produces a **braking torque** by "converting electrical power of the electrical machine into thermal energy to brake the wheel shaft." There is absolutely nothing in either Raby and Rasinski that discloses such a braking resistor unit, much less a braking resistor unit "disposed around the circumference of at least one of the input or the output of the transmission unit or the wheel shaft," as recited in claim 16.

For at least the foregoing reasons, it is respectfully submitted that claim 16 is allowable over Raby and Rasinski. Furthermore, since claims 17, 18, and 21-27 ultimately depend from claim 16, it is respectfully submitted that these claims are allowable over Raby and

Rasinski for at least the same reasons. Accordingly, it is kindly requested that the rejections of claims 16-18 and 21-27 under 35 U.S.C. § 103(a) be withdrawn.

VII. REJECTIONS OF CLAIMS 16, 20, AND 22-27 UNDER 35 U.S.C. § 103(a)

Claims 16, 20 and 22-27 were rejected under 35 U.S.C. § 103(a) as unpatentable over Raby in view of U.S. Patent No. 3,961,212 to McAdams, Jr. (hereinafter "McAdams"); and claims 16, 20 and 22-27 were rejected under 35 U.S.C. § 103(a) as unpatentable over Raby in view of U.S. Patent No. 5,517,401 to Kinoshita et al. (hereinafter "Kinoshita"). Respectfully, Applicants traverse.

As described above with respect to the obviousness rejections of claims 16-18 and 21-27, Raby fails to disclose each and every feature of claim 16, from which claims 20 and 22-27 ultimately depend. Furthermore, any reading of McAdams and Kinoshita makes clear that neither of these references cures the critical deficiencies of Raby as applied against parent claim 16. Specifically, McAdams and Kinoshita fail to disclose at least the following features of claim 16:

1. a transmission unit having at least one input connectable in a rotationally fixed manner to the rotor and having at least one output connectable in a rotationally fixed manner to the wheel shaft such that rotation of the rotor rotates the wheel shaft through the transmission unit,
2. at least one power converter unit operable to convert at least one of the speed of the rotor into torque and the torque of the rotor into speed, or
3. a braking resistor unit arranged in the vicinity of the electrical machine for converting electrical power of the electrical machine into thermal energy to brake the wheel shaft, the braking resistor unit being disposed around the circumference of at least one of the input or the output of the transmission unit or the wheel shaft

For at least the foregoing reasons, it is respectfully submitted that claim 16 is allowable over Raby, McAdams, and Kinoshita. Furthermore, since claims 20 and 22-27 ultimately depend from claim 16, it is respectfully submitted that these claims are allowable over Raby, McAdams, and Kinoshita for at least the same reasons. Accordingly, it is kindly requested that the rejections of claims 16, 20 and 22-27 under 35 U.S.C. § 103(a) be withdrawn.

VIII. REJECTIONS OF CLAIMS 28 AND 29 UNDER 35 U.S.C. § 103(a)

Claims 28 and 29 were rejected under 35 U.S.C. § 103(a) as unpatentable over Raby in view of McAdams, and further in view of U.S. Patent No. 5,950,752 to Lyons (hereinafter "Lyons"); and claims 28 and 30 were rejected under 35 U.S.C. § 103(a) as unpatentable over Raby in view of McAdams, and further in view of U.S. Patent No. 5,823,280 to Lateur et al. (hereinafter "Lateur"). Respectfully, Applicants traverse.

Claim 28, from which claims 29 and 30 ultimately depend, relates to "[a] drive system, comprising: a shaft drive unit as claimed in claim 16," and as described above with respect to the obviousness rejections of claims 16, 20, and 22-27, the combination of Raby and McAdams fails to disclose each and every feature of claim 16. Furthermore, any reading of Lyons and Lateur makes clear that neither of these references cures the critical deficiencies of Raby as applied against parent claim 16.

For at least the foregoing reasons, it is respectfully submitted that claims 28, is allowable over Raby, McAdams, Lyons, and Lateur. Furthermore, since claims 29 and 30 ultimately depend from claim 28, it is respectfully submitted that these claims are allowable over Raby, McAdams, Lyons, and Lateur for at least the same reasons. Accordingly, it is kindly requested that the rejections of claims 28-30 under 35 U.S.C. § 103(a) be withdrawn.

IX. CONCLUSION

In view of the foregoing, it is respectfully submitted that all pending claims are currently in allowable condition. Accordingly, reconsideration and prompt allowance of all pending claims is therefore earnestly solicited.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 11, 2003:

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Name of applicant, assignee or
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Respectfully submitted,

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